

Serial No.: 10/041,780
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Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) A coherent light source comprising:
a source emitting a first light having a first wavelength; and
a wavelength converting device for receiving the first light and converting the wavelength of a part of the first light by half by second-harmonic generation due to non-linearity of the wavelength converting device,
the wavelength converting device converting the part of the first light into a second light having a second wavelength,
a light separator that separates the first light and the second light, and
a detector that detects the wavelength of the first light separated by the light separation mechanism and a controller that controls the first light to a desired wavelength,
wherein the wavelength of the first light ~~which passes through the wavelength converting device~~ is detected and controlled to a the desired wavelength, so that the wavelength of the second light is controlled to a specific wavelength.
2. (previously presented) The coherent light source according to claim 1, wherein the first light is emitted from a semiconductor laser having a wavelength-variable function.
3. (original) The coherent light source according to claim 2, wherein the semiconductor laser comprises an active region, a phase control region and a distributed Bragg reflection (DBR) region.
4. (previously presented) The coherent light source according to claim 3, wherein the desired wavelength is within a phase-matching wavelength tolerance of the wavelength converting device, and a variation in wavelength of the first light with a change in operating

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current thereof is compensated by changing current to be input to the phase control region or the DBR region.

5. (currently amended) A coherent light source comprising:
a source emitting a first light having a first wavelength; and
a wavelength converting device for receiving the first light and converting the wavelength of a part of the first light by half by second-harmonic generation due to non-linearity of the wavelength converting device,
the wavelength converting device converting the part of the first light into a second light having a second wavelength,
a light separator that separates the first light and the second light,
~~wherein~~ a first mechanism that detects the wavelength of the first light that is separated by the light separation mechanism which passes through the wavelength-converting device and controls it the first light to a desired wavelength, and
a second mechanism that controls a phase-matching wavelength of the wavelength converting device to the wavelength of the first light, ~~are provided to control~~
wherein the wavelength and output of the second light is controlled to a specific wavelength.

6. (currently amended) The coherent light source according to claim 1, wherein the wavelength of the first light ~~that is detected after the first light has passed through the wavelength converting device is detected so as to be controlled to the desired wavelength.~~

7. (canceled)

8. (currently amended) The coherent light source according to claim 1, wherein the light separator comprises a diffraction grating, and the detector comprises further comprising:
~~a diffraction grating; and~~
a photo-detector,

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wherein the photo-detector detects the first light diffracted by the diffraction grating, and the wavelength of the first light is controlled so that the angle of diffraction of the diffracted light becomes constant.

9. (original) The coherent light source according to claim 8, wherein the wavelength converting device has an optical waveguide, and the diffraction grating is formed on the optical waveguide.

10. (previously presented) The coherent light source according to claim 8, wherein the photo-detector detects a position of the first light diffracted by the diffraction grating.

11. (original) The coherent light source according to claim 8, wherein the diffraction grating is formed as a chirped grating whose grating pitch is changed depending on location.

12. (original) The coherent light source according to claim 9, wherein the photo-detector is provided on one side of a substrate on which the optical waveguide is formed.

13. (currently amended) The coherent light source according to claim 1, wherein the detector comprises: ~~further comprising:~~

a cesium (Cs) gas cell; and

a photo-detector,

wherein the photo-detector detects the first light that has passed through the Cs gas cell, and the wavelength of the first light is controlled so as to minimize the intensity of the first light passing through the Cs gas cell.

14. (currently amended) The coherent light source according to claim 5, wherein the phase-matching wavelength of the wavelength converting device is varied by changing a refractive index of the wavelength converting device with ~~electrooptic~~ electro-optic effect or temperature change.

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15. (previously presented) A recording/reproducing apparatus comprising:
the coherent light source according to claim 1,
wherein the coherent light source is adjusted to have an optimum wavelength that
meets the Bragg conditions in reproducing hologram information recorded on a medium.

16. (previously presented) A recording/reproducing apparatus comprising:
the coherent light source according to claim 1 and
an optical system for focusing light emitted from the coherent light source on an
information medium.

17. (currently amended) The coherent light source according to claim 5, wherein the
wavelength of the ~~fundamental light that~~ first light is detected after the first light has passed
through the wavelength converting device ~~is detected so as to be controlled to the desired~~
~~wavelength.~~

18. (canceled)

19. (currently amended) The coherent light source according to claim 5, wherein the
light separator comprises a diffraction grating, and the first mechanism comprises further
comprising:

~~a diffraction grating; and~~

a photo-detector,

wherein the photo-detector detects the ~~fundamental~~ first light diffracted by the
diffraction grating.

20. (currently amended) The coherent light source according to claim 5, wherein the
first mechanism comprises: further comprising:

a cesium (Cs) gas cell; and

a photo-detector,

wherein the photo-detector detects the first light that has passed through the Cs
gas cell.

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21. (previously presented) A recording/reproducing apparatus comprising:
the coherent light source according to claim 5,
wherein the coherent light source is adjusted to have an optimum wavelength that
meets the Bragg conditions in reproducing hologram information recorded on a medium.

22. (previously presented) A recording/reproducing apparatus comprising:
the coherent light source according to claim 5 and
an optical system for focusing light emitted from the coherent light source on an
information medium.

23. (new) The coherent light source according to claim 1, wherein the light separator
comprises a wavelength separator.

24. (new) The coherent light source according to claim 5, wherein the light separator
comprises a wavelength separator.